

REMARKS

Summary and Status of Amendments

In the present Amendment, claims 1, 6, and 7 have been amended, and claim 8 and 9 have been canceled, with claim 1 being an independent claim. New claims 11-13 are added. Claims 1, 6, 7, and 11-13 remain pending and under consideration. Applicants note that the cancellation is without prejudice to or disclaimer of the subject matter recited in the canceled claims.

Support for the amendments to claim 1 are found throughout the specification. In particular, support for "a)" is found, for example, at page 4, line 10 to line 11; page 7, line 15 to line 20; and page 9, line 1 to page 10, line 6. Specific support for "b)" is found, for example, at page 4, line 10 to line 12; and page 11, line 9 to page 12, line 10.

Support for the amendments to claim 6 are found throughout the specification. In particular, support is found at page 7, line 6 to line 8; page 13, line 11 to line 19; and page 15, line 28 to page 16 line 1. Specific support for "c)" is found, for example, at page 5 line 1 to line 4; page 12, line 30 to page 13, line 2; and page 13, line 26 to line 31. Specific support for "d)" is found, for example, at page 5, line 4 to line 5; page 13, line 2 to line 4; and page 13, line 31 to page 14, line 4. Specific support for "e)" is found, for example, at page 13, line 33 to line page 14, line 2; and page 15, line 33 to page 16, line 3.

Claim Rejections – 35 U.S.C. § 101

The Office Action rejects claims 1-9 under 35 U.S.C. § 101, as allegedly directed to non-statutory subject matter. Applicants respectfully disagree with the rejection.

Initially, Applicants note that claim 1 has been amended to even more clearly recite the claimed invention. Claim 1 requires a) choosing at least one query molecule that is known to bind, or expected to be capable of binding, to the protein; and b) selecting lead-candidate compounds from the compound database by matching modes of covalent bonds between the query molecule and a trial compound stored in the database and judging similarity of partial structures of the query molecule and the trial compound.

Applicants respectfully reiterate all of the points raised in prior responses, which are equally applicable here. Applicants further respectfully submit that the Office misapplies the utility guidelines in this application. Applicants note that the utility guidelines require that the *result* be concrete, tangible, and useful. The steps to achieve that result need not satisfy any of those requirements.

Applicants' method involves a) choosing at least one query molecule that is known to bind, or expected to be capable of binding, to the protein; and b) selecting lead-candidate compounds from the compound database by matching modes of covalent bonds between the query molecule and a trial compound stored in the database and judging similarity of partial structures of the query molecule and the trial compound. Applicants respectfully submit that if practice of the present method results in the selection of a number of lead-candidate compounds that is fewer than the total number of compounds in a database, such result is *useful*. Simply stated, a process that results in a narrowing of the number of candidate compounds that must be tested in a laboratory environment is *useful, tangible, and concrete*.

Applicants respectfully request that the rejection under 35 U.S.C. § 101 be withdrawn.

Claim Rejections – 35 U.S.C. § 112, First Paragraph

The Office Action rejects claims 1-9 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. The Office Action repeatedly asserts that Applicants are enabled for “proteins” but not for all other biopolymers.

Without agreeing with or acquiescing to the rejection, Applicants respectfully note that the claims have been amended to recite “protein” instead of “biopolymer.” Applicants respectfully request withdrawal of the rejection.

Claim Rejections – 35 U.S.C. § 112, Second Paragraph

The Office Action rejects claims 1-9 under 35 U.S.C. § 112, second paragraph, as allegedly indefinite.

The Action asserts claim 1 is indefinite for being directed to selecting a lead candidate compound, yet allegedly failing to recite a step of selecting a lead candidate compound. Without agreeing with or acquiescing to the rejection, Applicants respectfully note that the claims have been amended to recite “selecting lead-candidate compounds.” Applicants respectfully request withdrawal of the rejection.

The Action asserts claim 1 is indefinite for the recitation of “for the mode of covalent bond” in the last line. Without agreeing with or acquiescing to the rejection, Applicants

respectfully note that the claims have been amended to even more clearly recite the claimed invention. Applicants respectfully request withdrawal of the rejection.

The Action asserts that claims 3 and 4 are indefinite for failing to clearly convey how "matching" fits with other recited steps – whether it replaces other steps or is supplemental. Without agreeing with or acquiescing to the rejection, Applicants respectfully note that claims 3 and 4 have been canceled. Applicants respectfully request withdrawal of the rejection.

Claim Rejections – 35 U.S.C. § 102

The Office Action rejects claims 1, 2, and 6-9 under 35 U.S.C. § 102(b) as allegedly anticipated by DESJARLAIS (PNAS USA (1990) 87: 6644-6648). In response, Applicants respectfully submit that DESJARLAIS does not anticipate the claimed invention.

Applicants note that the claims require a) choosing at least one query molecule that is known to bind, or expected to be capable of binding, to the protein; and b) selecting lead-candidate compounds from the compound database by matching modes of covalent bonds between the query molecule and a trial compound stored in the database and judging similarity of partial structures of the query molecule and the trial compound. Thus, Applicants' method involves first identifying a query molecule, and then selecting compounds from the database by matching to the query molecule.

DESJARLAIS, the Office Action notes, "obtains 3D information for both the protease and drug candidates from a database and fits the drug candidates into a model of the inhibitor binding site on the protein." (Office Action, page 11, lines 15-17.) Thus,

Attorney Docket No. P20797

Application No. 09/810,670

DESJARLAIS chooses candidate compounds based upon a fit into a binding site – not by matching to a query compound. DESJARLAIS chooses candidate compounds by judging how the compound fits as a ligand into a ligand-binding site of a target protein. DESJARLAIS selects candidate compounds by searching a database for compounds that would “fit” into a binding site; in contrast, the present invention selects candidate compounds by searching a database for compounds that “match” a query compound.

Applicants respectfully submit that DESJARLAIS does not anticipate the claimed invention.

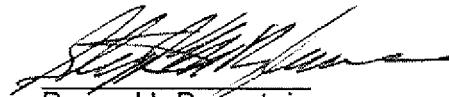
CONCLUSION

In view of the foregoing amendments and remarks, the Examiner is respectfully requested to enter the amendment, reconsider and withdraw the rejection of record, and allow all pending claims. Allowance of the application is requested, with an early mailing of the Notices of Allowance and Allowability.

The Office is authorized to charge any fees necessary to maintain the pendency of this application, including any fees necessary to enter an Examiner's amendment, to Deposit Account No. 19-0089.

If the Examiner has any questions, or wishes to discuss this matter, the Examiner is respectfully invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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